

TIP33C
TIP34C

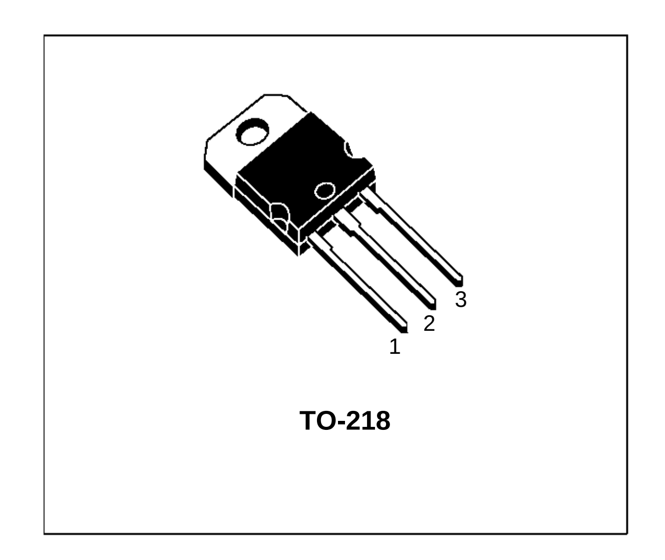
COMPLEMENTARY SILICON POWER TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

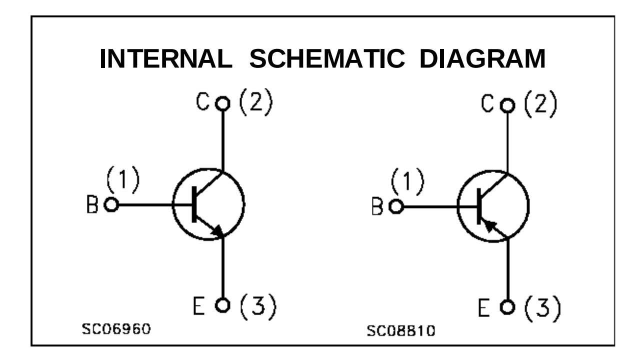
The TIP33C is a silicon epitaxial-base NPN power transistors in TO-218 plastic package, intented for use in linear and switching applications.

The complementary PNP types is TIP34C.



TO-218

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
		NPN	TIP33C	
		PNP	TIP34C	
V_{CBO}	Collector-Base Voltage (I_E = 0)		140	V
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)		140	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		100	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		7	V
I_C	Collector Current		10	A
I_{CM}	Collector Peak Current		12	A
I_B	Base Current		3	A
P_{tot}	Total Dissipation at $T_c \leq 25\ ^oC$		80	W
T_{stg}	Storage Temperature		-65 to 150	^oC
T_j	Max. Operating Junction Temperature		150	^oC

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.56	$^oC/W$

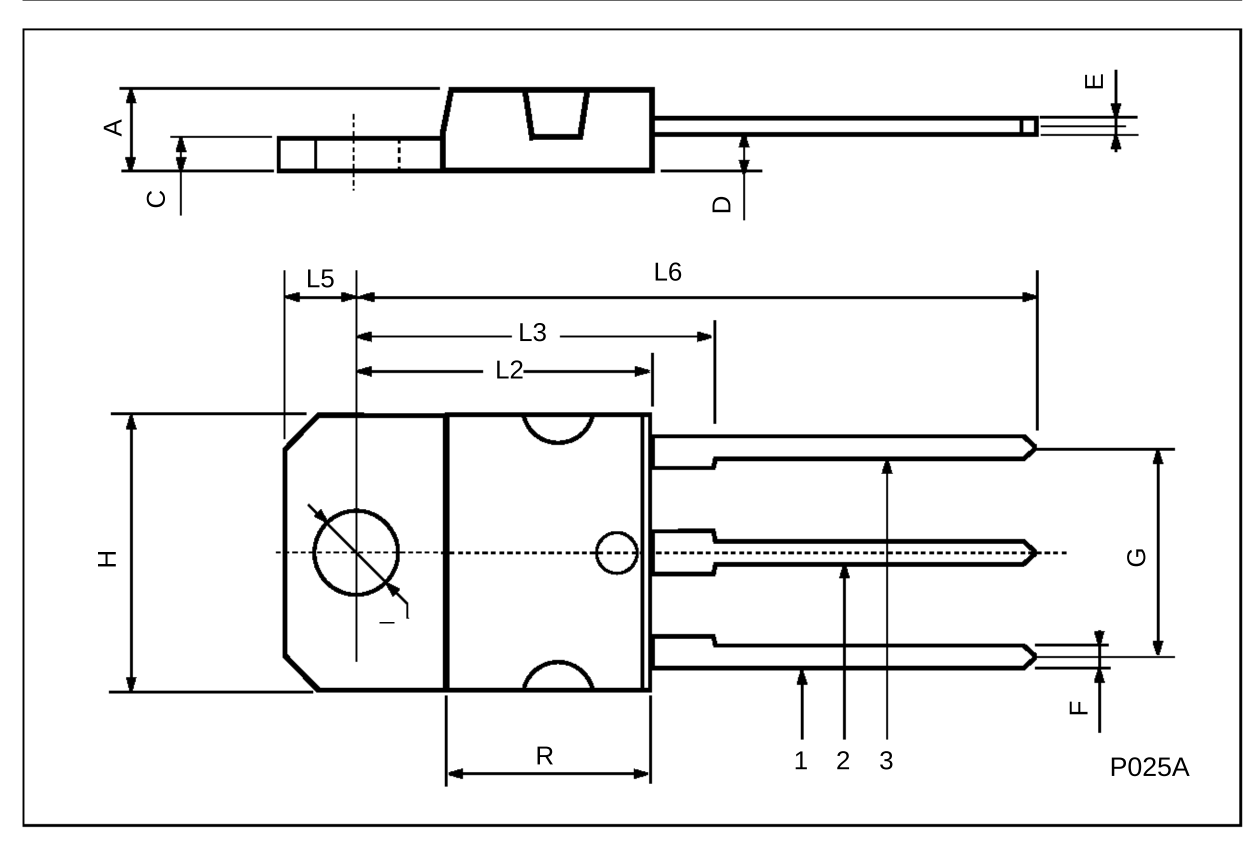
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 140 V			400	μA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 60 V			0.7	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 30 mA	100			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 3 A I_B = 0.3 A I_C = 10 A I_B = 2.5 A			1 4	V V
$V_{BE(on)}$*	Base-Emitter Voltage	I_C = 3 A V_{CE} = 4 V I_C = 10 A V_{CE} = 4 V			1.6 3	V V
h_{FE}*	DC Current Gain	I_C = 1 A V_{CE} = 4 V I_C = 3 A V_{CE} = 4 V	40 20		 100	
h_{fe}	Small Signal Current Gain	I_C = 0.5 A V_{CE} = 10 V f = 1 MHz	20			
f_T	Transition frequency	I_C = 0.5 A V_{CE} = 10 V f = 1 MHz	3			MHz
 t_{on} t_s t_f	RESISTIVE LOAD Turn-on Time Storage Time Fall Time	 VCC = 30V I_C = 6 A V_{BB} = - 6 V I_{B1} = - I_{B2}= 0.6 A t_p = 20 μs		 0.6 0.4 1		 μs μs μs

∗ Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %
For PNP types voltage and current values are negative.

TO-218 (SOT-93) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		4.9	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.5			0.098	
E	0.5		0.78	0.019		0.030
F	1.1		1.3	0.043		0.051
G	10.8		11.1	0.425		0.437
H	14.7		15.2	0.578		0.598
L2	–		16.2	–		0.637
L3		18			0.708	
L5	3.95		4.15	0.155		0.163
L6		31			1.220	
R	–		12.2	–		0.480
Ø	4		4.1	0.157		0.161




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